UK International Development
Partnership | Progress | Prosperity

REPUBLIC OF KENYA | eICT Authority

KICTANet
The Power of Communities

Policy Brief No. 1 March 2025

Digital Inclusion for Sustainable Development: Policy Recommendations for Kenya's ASAL and Food-Insecure Regions

Jimmy Macharia, Harriet Ratemo, Grace Githaiga

KEY DIRECTIONS

➢ Digital Inclusion is Essential for Sustainable Development. Bridging the digital divide in Kenya's ASAL and food-insecure regions is crucial for enhancing agricultural productivity, economic resilience, and inclusive growth.

➢ Limited ICT infrastructure, high internet costs, and low mobile penetration in ASAL regions are major barriers that hinder smallholder farmers from accessing digital tools that could transform their livelihoods.

➢ Access to Online Marketplaces, Mobile Money & Digital Banking, Digital Marketing & Advertising, eliminating middlemen and brokers, Efficient Transportation Services, have been identified as key factors positively influencing improvement in livelihoods (increased monthly earning).

➢ Access and Use of Government Services measured by use of eCitizen Portal, SHIF (Social Hospital Insurance Fund), NSSF (National Social Security Fund), iTax Portal (Kenya Revenue Authority), Kenya TradeNet System (Kenya Trade Network Agency), Huduma Kenya Online Services, Agricultural Information Management System (AIMS) and Ajira Digital Program have been identified as key factors positively influencing improvement in livelihoods (increased monthly earning).

➢ Behavioral improvements and social responsibility, as measured by Road Safety Awareness, Cybersecurity Awareness, Promoting Gender Equality, Environmental Awareness, and Digital Etiquette, have been identified as key factors positively influencing improvements in livelihoods, including increased monthly earnings.

This policy brief aims to highlight the importance of strengthening digital communities and provide recommendations for policymakers to enhance digital capabilities among their citizens, enabling them to participate in the digital economy. Additionally, this policy brief aims to highlight the importance of digital inclusion programs in ASAL regions in enhancing engagement with digital ecosystems and offer recommendations for policymakers to capitalise on this potential for sustainable economic development.

Digital inclusion, which refers to the equitable access to and use of information and communication technology (ICT) is crucial for promoting sustainable development in these areas. This policy brief outlines key challenges and proposes actionable recommendations to bridge the digital divide, enhance economic resilience, and foster inclusive growth.

1. What is the Issue?

The issue at hand is the persistent digital divide in Kenya's Arid and Semi-Arid Lands (ASALs) and food-insecure regions, particularly in Mandera County and Busia. Despite the rollout of digital literacy initiatives and the establishment of community hubs under the ICT Authority Foundation, many citizens—especially women, youth, and smallholder farmers—continue to face significant barriers in fully accessing and benefiting from digital tools and services. Limited access to stable electricity, inadequate ICT infrastructure, high internet costs, low smartphone ownership, and a lack of digital content in local languages have hindered the effective uptake of digital skills training and utilization.

Cultural and socio-economic factors also compound the issue. While the majority of those trained were women—a positive outcome—For example in Mandera, many were illiterate and spoke only Somali language, limiting their ability to engage with digital content. Additionally, heavy domestic responsibilities and poverty-related challenges (e.g., needing transport reimbursement to attend sessions) further inhibit their participation. The inadequate access to digital government services, online marketplaces, mobile money platforms, and digital tools for farming and trading platforms continues to exclude these populations from opportunities that could improve livelihoods and build economic resilience. While citizens have widely praised the training program, Community Digital Champions (CDCs), and government administrators alike, the structural and logistical challenges still pose significant barriers to sustained digital inclusion and growth.

Without strategic interventions, the digital divide risks deepening inequalities, particularly in underserved, remote, and food-insecure areas. This jeopardises efforts to harness digital technology for inclusive development, economic empowerment, and improved service delivery in these marginalised regions.

2. Why is addressing the issue important?

Digitalisation has revolutionised every sphere of life, requiring digital literacy skills in addition to numeracy and reading skills for all citizens. This advancement has presented opportunities to improve efficiency and sustainability through technologies such as precision farming, data analysis, automation, **e-commerce, and digital jobs in the digital economy ecosystem.** However, as **digitalisation for citizens** becomes pervasive, a digital gap persists as smallholder farmers in rural areas are unable to harness the benefits of these new technologies(Vahdanjoo et al., 2025). Studies show that **digitalisation** is an enabler of production efficiency and a powerful innovator with a capacity to redesign business models and agricultural practices.

Digital inclusion is paramount for sustainable development. This inclusion entails not only access to digital technologies but also the capacity to **utilise** them effectively for economic, educational, and agricultural advancement. In Kenya's ASAL and food-insecure regions, digital exclusion remains a barrier to productivity and resilience. Limited internet connectivity, high costs of digital devices, and low levels of digital literacy prevent **citizens, including** smallholder farmers**,** from leveraging available technological solutions (Njuguna et al., 2025; Vahdanjoo et al., 2025). Without targeted interventions, the digital divide will continue to widen, leaving these communities at a disadvantage in accessing market information, financial services, and climate-smart agricultural practices. Therefore, integrating digital infrastructure and literacy programs into development policies is essential to fostering long-term sustainability and economic empowerment in these regions.

Digital inclusion activities will help to promote ICT use and accessibility for the social and economic development of people with certain needs, such as the people living in ASAL and food-insecure areas, and the vulnerable populations. The main barriers contributing to the digital divide are: poor/lack of ICT infrastructure, ICT illiteracy, lack of tailored content, localization, amongst others. Many ICT projects are still at the grassroots level, especially in the rural areas (Okello, 2024; Vahdanjoo et al., 2025). Considering that we are in the digital era, it is important to execute **capacity-building** initiatives for **citizens, including** stakeholders in agriculture, such as the farmers, women and youths, local administrative bodies and others.

3. What should policymakers do?

Kenya has made significant progress towards digital transformation in agriculture. Initiatives such as the Big Data Platform and Kenya Agricultural Observatory Platform (KAOP) have helped the country transition into a data center with valuable insights for farmers such as weather patterns, agronomics and analytics. There was also the One Million Farmer Platform which is an initiative designed to help connect farmers with digital tools and agritech startups(ReliefWeb, 2025). These projects were executed in partnership with World Bank with the aim of improving agricultural productivity. The issue, however, is that most of these projects are still in their infancy. ASAL areas remain at a disadvantage; for instance, computer access in areas such as Marsabit and Mandera remain at 1.1%, which is significantly low compared to urban areas, where it is at 20.9% (Indeje, 2025). The country's capital leads with the highest mobile penetration, followed by other urban areas. But rural areas are disadvantaged; for example, Turkana has the lowest mobile penetration rate with 69.1% mobile phone ownership, unlike Nairobi, which has 98.8% mobile phone ownership (Indeje, 2025). There are significant disparities in mobile phone ownership and computer access between urban and rural areas. Similarly, internet usage is significantly higher in urban areas at 56.5% than in rural areas at 25.0% (Indeje, 2025). Kenya's ASAL areas are predominantly rural areas. The ASAL areas are characterised by low rainfall, pastoralism and agro-

pastoralism. A significant portion of the population in rural areas resides in villages. Their livelihood is dependent on small-scale farming and livestock rearing.

Food insecurity is most severe in ASAL territories. These regions face innumerable challenges that make it difficult for smallholder farmers to prosper, for instance, the prolonged droughts, erratic rainfall, and poor infrastructure that are characteristic in ASAL regions. Considering ASAL areas make up 80% of the country's landmass, the production struggles impede the country's ability to keep up with population growth. So far, the policies have been weak in terms of accelerating development challenges in ASAL areas. An estimated 1.9 million people are facing high levels of acute food insecurity. An additional 1.3 million are in dire crisis and at least 300,000 are in an emergency state (IPC, 2025). Women and children in ASAL areas are highly affected and face acute malnutrition. It is projected that the food security situation is likely to worsen due to the intermittent weather patterns since Kenya's agriculture is highly dependent on rainfall. As such, there is an urgent need for interventions that will reduce food gaps, improve livelihoods, and prevent and treat acute malnutrition.

Policy Recommendations

The following policy recommendations aim to address the issue of food insecurity in Kenya's arid and semi-arid lands (ASAL) and food-insecure regions.

3.1 Expand and Strengthen Digital Infrastructure in Marginalized Regions

Policymakers should ensure the expansion and reliability of digital infrastructure in Kenya's arid and semi-arid lands (ASAL) and food-insecure regions. This includes investing in a stable electricity supply, affordable and reliable internet connectivity, and the development of functional community digital hubs (Abiodun, 2025; Hernandez et al., 2024; Qureshi, 2024). Strengthening this foundational infrastructure is essential to enable equitable access to digital services and to ensure that citizens in marginalised counties, such as Mandera, can meaningfully participate in the digital economy and leverage technology to improve their livelihoods.

3.2 Promote Localized and Inclusive Digital Literacy Programs

Policymakers should integrate localised and inclusive digital literacy programs that cater to the linguistic and educational needs of underserved populations(De Jong et al., 2024; Qureshi, 2024; United Nations, 2025). This entails supporting the development and delivery of training in local languages such as Somali, utilising audio-visual materials, and adopting methodologies that accommodate illiterate and semi-literate learners(United Nations, 2025). Emphasis should be placed on the inclusion of women and youth, who often face additional social and economic barriers to digital access and participation(Hernandez et al., 2024; Qureshi, 2024).

3.3 Facilitate Public-Private Partnerships for Hub Sustainability

Policymakers should facilitate and promote public-private partnerships (PPPs) to ensure that community digital hubs are adequately equipped for sustained operations(Hernandez et al., 2024; Qureshi, 2024). These partnerships should focus on providing alternative power solutions, such as solar energy and backup generators, as well as affordable smartphones, tablets, and other digital devices(Hernandez et al., 2024). Ensuring that hubs have the tools and infrastructure necessary for continuous service delivery will help address frequent power interruptions and improve community access to digital tools and services.

3.4 Institutionalise the Role of Community Digital Champions (CDCs)

Policymakers should formally recognize and institutionalize Community Digital Champions (CDCs) as essential frontline actors in advancing digital inclusion at the grassroots level(Chowdhury & Gow, 2024). This includes providing them with ongoing capacity-building, fair remuneration, and access to digital tools and resources that enable them to train and support citizens effectively. By strengthening the CDC model, the government can build a sustainable, community-driven approach to digital literacy and technology adoption.

3.5 Mainstream Digital Inclusion Across Development Sectors

Policymakers should promote digital inclusion as a cross-cutting pillar of national and county development agendas(Hernandez et al., 2024; Vahdanjoo et al., 2025). This requires integrating digital tools and platforms into sectors such as agriculture, education, health, financial services, and access to government services. By ensuring that digital solutions are tailored to the unique challenges and needs of underserved communities, policymakers can unlock new opportunities for economic empowerment, improved service delivery, and

inclusive growth(Indeje, 2025; Okello, 2024; United Nations, 2025).

Conclusion

Achieving digital inclusion in Kenya's ASAL and food-insecure regions is a matter of technological advancement. It is also a fundamental driver of sustainable development, economic empowerment, and resilience. As digitalisation continues to shape the global economy, communities in these marginalised regions must be equipped with the infrastructure, skills, and resources to fully participate. Without targeted interventions, the existing digital divide will deepen, exacerbating inequalities and limiting opportunities for growth.

The proposed policy recommendations: Expanding digital infrastructure, promoting inclusive digital literacy programs, fostering public-private partnerships, institutionalising Community Digital Champions, and mainstreaming digital inclusion across development sectors, provide a roadmap for bridging this gap. Policymakers should prioritise these initiatives so as to unlock new pathways for smallholder farmers, women, youth, and other vulnerable populations to access vital digital tools, improve their livelihoods, and contribute to Kenya's broader economic and social transformation. A digitally inclusive future is within reach. Yet, bold action is needed to make it a reality.

REFERENCES

Abiodun, K. (2025). *Digital infrastructure & sustainable data centers investment in Africa : Role of Tier III & Tier IV Digital infrastructure & sustainable data centers investment in Africa : Role of Tier III & Tier IV Received : 12-12-2024 Accepted : 15-01-2025 Page No : 1. February*. https://doi.org/10.54660/.IJMRGE.2025.6.1-1878-1888

Chowdhury, A., & Gow, G. A. (2024). Digital Communication for Agricultural and Rural Development. In *Digital Communication for Agricultural and Rural Development*. https://doi.org/10.4324/9781003282075

De Jong, M. V., Selten, G.-K., Peters, B., & Dengerink, J. . (2024). An Overview of the Kenyan Education System: Outcomes, Drivers and Activities. *Foresigth4Food, Oxford*.

Hernandez, K., Flynn, J., He, J., & Alsahi, H. (2024). *Towards digital inclusion in rural transformation*. Food & Agriculture Org.[Author][Author].

Indeje, D. (2025). *Digital Divide in Kenya: ICT Access and Usage Data Reveals Disparities | KICTANet Think Tank*. https://www.kictanet.or.ke/digital-divide-in-kenya-ict-access-and-usage-data-reveals-disparities/

IPC. (2025). *Kenya: About 2.1 million people in the ASAL region are highly food insecure due to failed rains, low agricultural production and high food prices. | IPC - Integrated Food Security Phase Classification*. https://www.ipcinfo.org/ipcinfo-website/countries-in-focus-archive/issue-47/en/

Njuguna, E., Daum, T., Birner, R., & Mburu, J. (2025). Silicon Savannah and smallholder farming: How can digitalization contribute to sustainable agricultural transformation in Africa? *Agricultural Systems*, *222*, 104180. https://doi.org/10.1016/J.AGSY.2024.104180

Okello, F. (2024). *Bridging Kenya's Digital Divide: Context, Barriers and Strategies*. www.cigionline.org

Qureshi, I. (2024). *Empowering Marginalized Communities : A Framework for Social Inclusion. December*.

ReliefWeb. (2025). *Kenya-Arid & Semi-Arid Lands Drought Response Dashboard*. www.reliefweb.int

United Nations. (2025). *Productive capacities development : Challenges and opportunities*.

Vahdanjoo, M., Sørensen, C. G., & Nørremark, M. (2025). Digital transformation of the agri-food system. *Current Opinion in Food Science*, *63*, 101287. https://doi.org/10.1016/J.COFS.2025.101287

Funding Partner:

Managing Partner-

Implementing Panters-